apple computer inc.

Apple][Technical Procedures

Section 3

Troubleshooting

Contents:

Apple][Troubleshooting Chart

NOTE: The Probable Causes are listed in the order of probable failure. It is recommended that Probable Causes are checked or replaced in the order listed.

Symptom	Probable Cause
Apple will not boot; drive comes on.	1) RAM row E. 2) RAM on Language Card at location E2. 3) Motherboard
Programs run erratically, often crash.	1) RAM 2) Motherboard
No beep and no message is displayed; monitor has random characters on screen when the Apple is turned on; drive does not come on.	1) RAM row C. 2) "F8" ROM at location F3 on the motherboard. 3) "F8" ROM on the Language Card at location E2. 4) Motherboard
Peripheral does not work properly.	1) Motherboard
Keys fail to remove appropriate character from the keyboard test on the Apple][diagnostic.	1) Keyboard Cable 2) Keyboard Electronic 3) Keyboard Mechanical 4) Motherboard
Applesoft or Integer BASIC fails to operate or is erratic.	1) ROM 2) Motherboard
Game I/O port malfunction (Check with diagnostic.)	1) Game Paddles 2) Motherboard
All video malfunctions (Graphics and Text)	1) Motherboard
Cassette Interface malfunction	1) Motherboard

Apple][Troubleshooting Chart

Symptom	Probable Cause
Apple][system dead. (No beep, no video, no power light)	1) Power Supply 2) Motherboard
Apple][system dead (No beep, no video, power light on).	1) Power Supply 2) Motherboard
Speaker malfunction	1) Speaker 2) Motherboard
No video display	1) Video Cable 2) Video pot adjustment 3) Motherboard

Apple][Chip Swapping Chart

Symptom	Location(s)	Defective Chip Type
Dead Apple System (Power On Light)	A2	74LS00
	B1	74S174
	B2	74S86
	B13	74LS02
	C1	74LS153
	C2	74LS195
No RESET or No Response	A13	555
	B5	74LS174
	B6	74LS257
	B7	74LS257
	B8	74LS174
	B11	74LS08
	C14	74LS32
	E11,12,13	74LS153
	F12	74LS138
	F13	74LS138
	F14	9334
	H1	74LS08
	H3,4,5	8T97
	H8	6502
	H10,11	8T28
	H14	74LS5251
Apparent ROM Problems	F12	74LS13
	H1	74LS08
Apparent RAM Problems	A2	74LS00
	B5,8	74LS174
	C14	74LS32
	D2	74LS20
	E2	74LS139
	E11,12,13	74LS153
	F2	74LS139
	H1	74LS08
No Video (Speaker does Beep)	A2	74LS00
	A8	74LS257
	A9	74LS151
	A10	74LS194
	B2	74S86
	B10	74LS74
	B13	74LS02
	C2	74LS195
	C11	74LS04
	D11,12,13,14	74LS161

Apple][Chip Swapping Chart

Symptom	Location(s)	Defective Chip Type
No Text Mode	A3	74166
	A5	1513
	A8	74LS257
	A9	74LS151
	A10	74LS194
	B2	74S86
HIRES or LORES Problem	A0	74LS194
	A8	74LS257
	A9	74LS151
	A11	74LS74
	B4,9	74LS194
	B10	74LS74
	C11	74LS04
	C12	74LS257
	F14	9334
	H1	74LS08
	J1	74LS257
Dark Screen	A2	74LS00
	B1	74LS174
	B2	74S86
	C1	74LS153
	C2	74LS195
V or H SYNC Fails	C13	74LS51
	C14	74LS32
	D11,12,13,14	74LS161
Wrong Page or Video Mode	B5,8	74LS174
	B11	74LS08
	B12	74LS11
	B13	74LS02
	C11	74LS04
	C12	74LS257
	E11,12,13	74LS153
	E14	74LS283
	F2	74LS139
	F14	9334
	H1	74LS08
	J1	74LS257

Apple][Chip Swapping Chart

Symptom	Location(s)	Defective Chip Type
Wrong or Bad CHRS	A3	74166
	A5	1513
	B5,8	74LS174
	B6,7	74LS257
Bad Cursor	A3	74166
	B2	74S86
	B11	74LS08
	B13	74LS02
Bad Graphics	A8	74LS257
	A9	74LS151
	A10	74LS194
	A11	74LS74
	B4,9	74LS194
No Color	B12	74LS11
	B13	74LS02
	C13	74LS51
Game Paddles Problem	F13	74LS138
	H13	558
	H14	74LS251
Cassette Loading Problem	F13	74LS138
	H14	74LS251
	K12	741 OP AMP
Cassette Saving Problem	F13	74LS138
	K13	74LS74
Speaker Problem	F13	74LS138
	K13	74LS74
Keyboard Problem	A12	74LS02
	B6,7	74LS257
	B10	74LS74
	C11	74LS04
	F13	74LS138
Peripheral Card in Slot Won't Work	H2,12	74LS138